Section 2
Land Preservation

2.1 Overview

According to the original SEPP workplan, the highest priority was the acquisition and preservation of land, formerly owned by the University of New Hampshire, to preserve the integrity of the Atlantic White Cedar/Giant Rhododendron /Black Gum ecosystem on Hackett Hill. A preserve would then be conveyed to The Nature Conservancy (TNC) for protection.

The Manchester Cedar Swamp is a globally rare Atlantic white cedar/giant rhododendron swamp, the only swamp of this kind north of Massachusetts, and one of less than ten in New England.

2.2 Goals

Protecting the rare ecosystem on Hackett Hill was the main goal of this task. Acquiring substantial contiguous acres of land in the vicinity of the preserve for protection was a secondary goal, as this will also help preserve the integrity, health and biodiversity of the system.

2.3 Benefits Achieved

Over 602 acres of land were preserved in the City to form TNC's Manchester Cedar Swamp Preserve. A map is available on their webpage.[1]

Table 2-1 shows the funds expended and acreages acquired.

Also included in Table 2-1 is the Stewardship Endowment for the preserve. A total of $200,000, 50% from the SEPP and 50% from donations and endowments to The Nature Conservancy, will provide for continued management of the preserve by TNC. This includes such tasks as trail construction, brochure production[2], and data collection and management.

TNC will act as stewards for the preserve in the long-term, maintaining trails and monitoring the health of the ecosystem.

In addition to the environmental and research benefits that will be gained from the existence of this preserve, public recreational benefits of the preserve include continued access for hunting and access for passive recreation, nature observation and education along the preserve's trail system.

[1] http://www.nature.org/wherewework/northamerica/states/newhampshire/images/mcs_basic_small.jpg

[2] The Nature Conservancy preserve brochure & map: http://www.nature.org/wherewework/northamerica/states/newhampshire/files/mcsbrochure.pdf is also included at the end of this chapter.

Tract	Acres	Acquisition Date	Purchase Price	Other Acquisition Costs[3]	Endowment	Total
All Tracts					$100,000.00	$100,000.00
Manchester I	350	16 Jul 01	$1,050,455	$7.999.60		$1,058,454.60
Pichette	81	20 Dec 02	$178,500	$29,937.00		$208,437.00
Manchester II	23	20 Dec 02	$69,444	$5,883.71		$75,327.71
Manchester III	142	18 Jul 03	$354,175	$2,940.11		$357,115.11
Woodland Pond	6	26 Sep 03	$460,000	$5,866.88		$465,866.88
TOTALS:	**602**		**$2,113,399**	**$52,627.30**	**$100,000.00**	**$2,265,201.30**

Table 2-1
Acquisition Details by Tract

2.4 Measurable Results and Long Term Benefits

Over 602 acres of globally rare Atlantic White Cedar/Giant Rhododendron/Black Gum ecosystem was preserved. All of these preserved acres are within the municipal boundary of Manchester, the largest City in the state.

A 1.8-mile *trail network* was established in 2003, and has received approximately 1,000 to 1,400 visitors per year. A kiosk was constructed at the trailhead to educate visitors about the preserve.

Over 600 acres of globally rare ecosystem were protected in Manchester at Hackett Hill.

Four areas abutting the preserve were identified as "sensitive development" areas as they are within the watershed of the Atlantic White Cedar Swamp and Black Gum communities, but not included in the preserve. Sensitive development measures will be included as deed restrictions on these properties to run with the land in perpetuity. The measures are presented in Table 2-2.

2.5 Leveraged Funding

Leveraging of funding from sources outside of the SEPP is an additional benefit to the City. This is money that likely would not have been available to the City if the SEPP had not taken place. Leveraged funding included:

- $75,000 grant from New Hampshire Land and Community Heritage Investment Program (LCHIP – www.lchip.org) for the Manchester III parcel;
- $100,000 in funds raised by The Nature Conservancy for the stewardship endowment of the preserve; and
- Over 700 hours in volunteer time, at approximately $18/hour, equivalent to approximately $12,600.

Total leveraged funds: $187,600

[3] 'Other Acquisition Costs' include survey, deed research, transfer costs, appraisal costs, etc. Note that these are only the costs incurred by the TNC and reimbursed by the City using SEPP funds. The City incurred additional costs not reflected here, including $12,000 expended by the Housing Authority for acquisition of the Pichette Property.

a. All drainage will either be piped out of the watershed of the sensitive swamp complex or, if approved by NHDES and USEPA, retained in such a manner as to mitigate impacts on the complex. All drainage structures, pumps, and piping will be owned, operated, and maintained in perpetuity by the City of Manchester. Undisturbed areas that receive no runoff from impervious area may continue to drain within the watershed.
b. There will be no salt applied to roadways and parking lots for winter road maintenance.
c. Designated snow storage areas will be created for deposit of plowed snow. Such snow storage areas will be designed to trap all sediment for collection and proper disposal.
d. All trash storage areas will be covered and protected from the weather.
e. Roadways and parking lots will be vacuum swept at least bi-weekly, except as winter conditions may prohibit, and will otherwise be kept in a clean manner.
f. Existing parking lots will only be used as parking lots, unless alternate site development configurations that minimize environmental and visual impacts are approved by the mutual consent of NHDES and USEPA.
g. There will be no cutting of trees outside of designated building sites except for routine maintenance of dead or overhanging limbs.
h. All development sites will be actively managed to prevent contamination of sensitive areas. All lessees and landowners within the park will be subject to annual property inspections by the City for the purpose of educating site operators about pollution prevention and the significance of the local ecological resources. NHDES staff will be available to train inspectors. Inspections will focus on stormwater management, parking lot maintenance, lighting, landscaping, herbicides, fertilizers, and storage of regulated substances. Copies of annual inspection reports will be provided to NHDES and USEPA.
i. All development, including buildings, parking lots, and utilities, will be sited as far away from sensitive ecological resources as possible.

Table 2-2
Sensitive Development Measures

2.6 Summary of Other Activities

As discussed above, TNC will act as the steward for the preserve for the foreseeable future. Among their early stewardship activities, they have completed the following.

Trail Network: A 1.8-mile *trail network* was established in 2003, and has received approximately 1,000 to 1,400 visitors per year. *Unauthorized trails* have been closed down by TNC in an effort to consolidate preserve visitation into designated areas, and leave other areas in a more natural state to preserve sensitive ecological processes. TNC has also made progress in reducing ATV use on the preserve.

Trailhead Improvements - A *kiosk* was built in 2005 at the preserve trailhead. Interim preserve information is available at the kiosk, and more comprehensive display panels will be developed in the future. The *trail register* at the kiosk contains visitor *brochures*, which are in their second printing (copy included at the end of this section). A *parking* area for 10 cars is currently

A volunteer monitors water level at the preserve. Volunteers have been involved in trail building, hydrological monitoring, preserve maintenance, kiosk construction, and invasive species detection and removal.

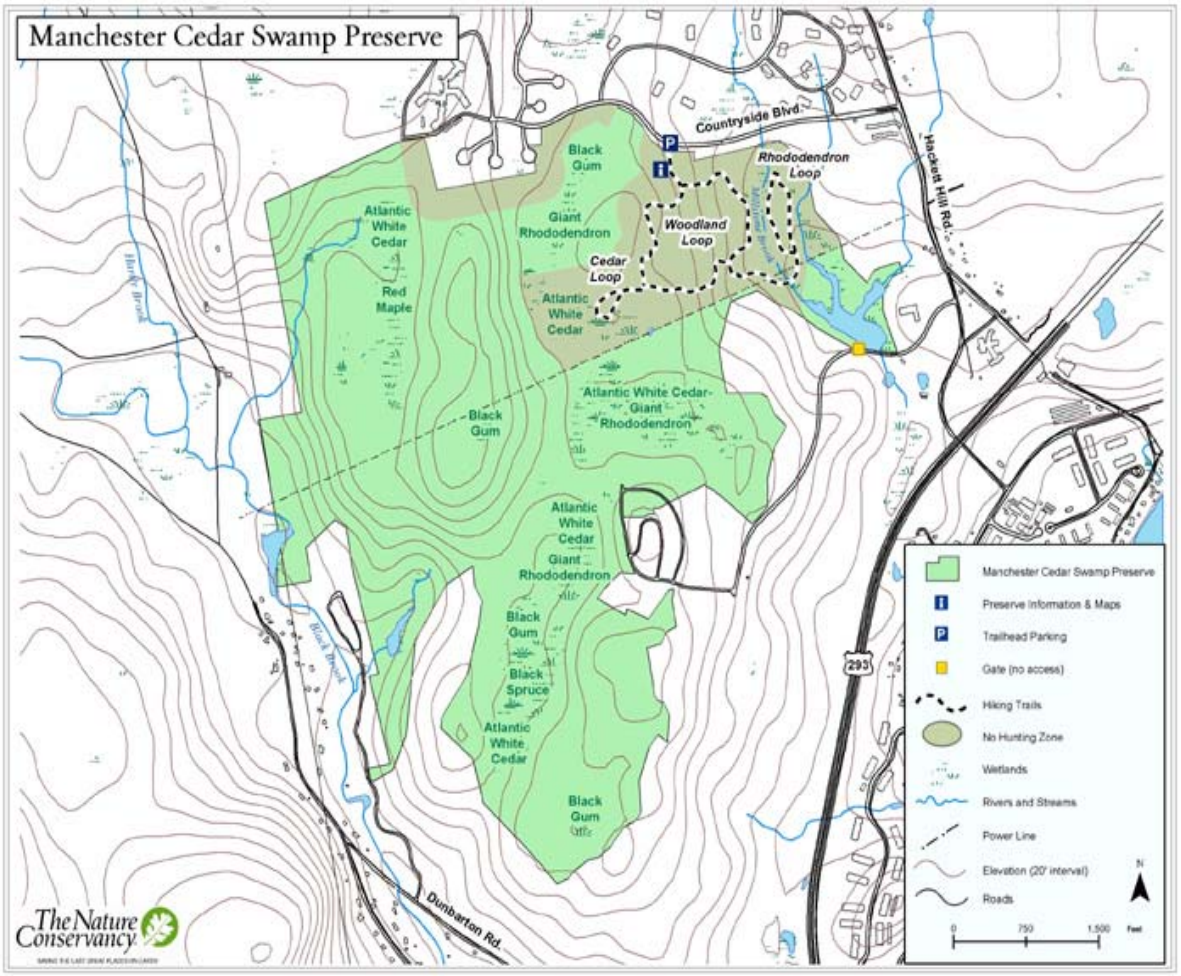
being constructed to provide safe access for preserve visitors.

Boundary Maintenance - The entire preserve perimeter has been marked with *TNC boundary signage*, and the boundary is monitored to ensure that the preserve is remaining intact. *Boundary encroachments* from adjacent development have been detected, and action is being taken to clearly delineate the property lines with new residential abutters, and to take action to remedy encroachments and prevent further encroachments onto the preserve.

Hydrologic Monitoring - *Baseline Hydrological data* has been gathered for designated wetland basins within the preserve. This data collection has continued on a monthly basis for the last six years, providing an excellent baseline of variation of hydrological ranges for the sensitive ecosystems. Combined with data from a graduate student project, seven years of continuous water level baseline information is now available.

Invasive Species - Plans are underway to inventory and control *invasive species* occurring on the preserve.

Volunteers - Over 40 *volunteers*, donating over 700 hours of time have made many of these accomplishments possible. Volunteers have been involved in trail building, hydrological monitoring, preserve maintenance, kiosk construction, and invasive species detection and removal.



Map of The Nature Conservancy's Manchester Cedar Swamp Preserve